PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

TRANSLATION

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

	Date of mailing *(day/month/year)*

Applicant's or agent's file reference **,**	FOR FURTHER ACTION
PCT05-245	See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/JP2005/010500	**08.06.2005**	**23.07.2004**

International Patent Classification (IPC) or both national classification and IPC

Applicant

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

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1. This opinion contains indications relating to the following items:

   ☒ Box No. I Basis of the opinion

   ☐ Box No. II Priority

   ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

   ☐ Box No. IV Lack of unity of invention

   ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

   ☐ Box No. VI Certain documents cited

   ☐ Box No. VII Certain defects in the international application

   ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

   If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

   If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

   For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP	Authorized officer
Facsimile No.	Telephone No.

Form PCT/ISA/237 (cover sheet) (January 2004)

Box No. I	Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language

   _____ , which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-16	YES
	Claims		NO

Inventive step (IS)	Claims	3, 5, 8, 14	YES
	Claims	1, 2, 4, 6, 7, 9-13, 15, 16	NO

Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations:

Document 1: JP, 10-49705, A (Sharp Corporation), 20 February, 1998 (20.02.98), paragraphs [0034]-[0038], Fig. 2, Fig. 8 (Family: none)
Document 2: JP, 6-195198, A (Ricoh Company, Ltd.), 15 July, 1994 (15.07.94), paragraph [0008], & US, 5551019, A
Document 3: JP, 1-244585, A (Mitsubishi Electric Corporation), 28 September, 1989 (28.09.89), page 3, upper right column, lines 2-10, Fig. 2 (Family: none)

The subject matters of claims 1, 2, 4, 9-13, 15, and 16 do not appear to involve an inventive step in view of document 1 (paragraphs [0034]-[0038], Fig. 2, and Fig. 8) and document 2 (paragraph [0008]) cited in the ISR.
Document 1 describes a Z buffer system hidden-surface elimination device in which an input Z value and a Z value in a Z buffer part are divided into high-order and low-order parts, and a comparison operation is performed between the high-order parts and between the low-order parts, and a storing of the high-order part and the low-order part of the input Z value is controlled according to the result of the operation.
Document 2 describes that in a sorting device, input reference value data (Z value data) is divided into 2 data groups, high-order digits and low-order digits, and a sorting of the high-order digits is performed, and with regard to reference value data which have common high-order digits, a sorting of their low-order digits is sequentially performed. The document discloses the technique in which a process on the basis of low-order digits of a Z value is controlled according to the processing result on the basis of high-order digits of the Z value.
A person skilled in the art could have easily applied the technique described in document 2 to the Z buffer system hidden-surface elimination device described in document 1 in order to draw a three-dimensional shape at high speed.

The subject matters of claims 6 and 7 do not appear to involve an inventive step in view of documents 1, 2 and document 3 (lines 2-10 of upper right column, page 3 and Fig. 2) cited in the ISR. A person skilled in the art could have easily applied the technique described in document 3 in which a depth buffer memory is initialized to a minimum value or a maximum value to a Z buffer system hidden-surface elimination device described in document 1.

The subject matters of claims 3, 5, 8, and 14 are neither described in any of the documents cited in the ISR nor obvious to a person skilled in the art.